

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-52. (Canceled)

53. (Previously presented) A formulation (F) intended for use in an operation of rinsing (R) textile fiber articles (S) by means of an aqueous or aqueous-alcoholic medium (MR), said formulation (F),

comprising at least one active substance (A) comprising a solid organic polymer in particulate form and a vehicle (V) comprising at least one organic polymer, capable of taking said active substance (A) to the surface of said textile fiber articles (S) in the rinsing operation (R),

in the form:

of a stable dispersion, with a pH of from 2 to 5, of said active substance (A) in an aqueous or aqueous-alcoholic medium (MAV) comprising said vehicle (V),
or

in a solid form obtained by drying said dispersion,

the nature of the active substance (A), of the aqueous or aqueous-alcoholic medium (MAV), and of the vehicle (V) being such that:

the active substance (A):

is insoluble in the medium (MAV),

has an overall zero or cationic charge in the medium (MAV),

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is stabilized in the medium (MAV) by means of a cationic surfactant (TAC), it being possible for said cationic surfactant (TAC) to be wholly or partly replaced by a nonionic surfactant when the polymer constituting the active substance (A) is intrinsically cationic or intrinsically potentially cationic in the medium (MAV), remains insoluble in the rinsing medium (MR) or is capable of swelling in the rinsing medium (MR); and

the vehicle (V):

is soluble or dispersible in the medium (MAV) and in the rinsing medium (MR),
has an overall cationic or zero ionic charge in the medium (MAV),
at the pH of the rinsing operation in the rinsing medium (MR) is capable of developing anionic charges in sufficient quantity to destabilize the active substance (A) in the rinsing medium (MR).

54. (Withdrawn) The formulation according to Claim 53), wherein the rinsing medium (MR) has a pH of from 5.5 to 8.

55. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the active substance (A) is:

- a) nonionic polymers derived from at least one nonionic hydrophobic monomer,
- b) copolymers derived from at least one nonionic hydrophobic monomer and at least one monomer which is cationic or potentially cationic in the medium (MAV), and

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optionally at least one monomer which is neutral in the medium (MAV) and

potentially anionic in the rinsing medium (MR), or

c) copolymers derived from at least one nonionic hydrophobic monomer and at least one monomer which is neutral in the medium (MAV) and potentially anionic in the rinsing medium (MR).

56. (Withdrawn) The formulation according to Claim 55), wherein the monomer composition from which said polymer is derived further comprises:

at least one noncharged or nonionizable hydrophilic monomer, preferably in an amount not exceeding 50% of the total mass of the monomers,

at least one zwitterionic monomer, preferably in an amount not exceeding 30% of the total mass of the monomers, or

at least one crosslinking monomer, preferably in an amount not exceeding 10% of the total mass of the monomers.

57. (Withdrawn) The formulation according to Claim 55), wherein the copolymer b) further comprises an anionic monomer whose first pKa is less than 3, in an amount sufficiently low that said copolymer b) has a cationic overall charge in the medium (MAV).

58. (Withdrawn) The formulation according to Claim 55), wherein, when said polymer constituting the active substance (A) is an ionic or ionizable copolymer, the selection and relative amounts of monomers from which said copolymers are derived are such that the active substance (A):

is insoluble in the medium (MAV),

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exhibits a zero or cationic overall charge in (MAV), and
remains insoluble in the rinsing medium (MR) or is incapable of
swelling by more than 8 times, preferably not more than 4 times, its
volume in the rinsing medium (MR).

59. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the active substance (A) are in the form of particles having an average diameter ranging from 10 nm to 10 μ m.

60. (Withdrawn) The formulation according to Claim 53), wherein the monomers from which the polymers constituting the active substance (A) are derived are α - β monoethylenically unsaturated or diethylenically unsaturated in the case of the crosslinking monomers.

61. (Withdrawn) The formulation according to Claim 53), wherein the selection and relative amounts of the monomer or monomers from which the polymer constituting the active substance (A) are derived are such that said polymer has a glass transition temperature Tg of from -80°C to +150°C.

62. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the active substance (A) is insoluble in the medium (MAV) and in the rinsing medium (MR), and in that it is a polymer derived from at least one nonionic hydrophobic monomer or a copolymer derived from at least one nonionic hydrophobic monomer and from 0.1 to 20% of their weight of at least one monomer which is potentially cationic in the medium (MAV).

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63. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the active substance (A) is an organic copolymer which is insoluble in the medium (MAV) with a pH of from 2 to 5, is capable of swelling in the rinsing medium (MR) with a pH of from 5.5 to 8, and is capable of dissolving in the washing bath during a subsequent washing operation at a pH of from 8.5 to 11.
64. (Withdrawn) The formulation according to Claim 63), wherein said polymer constituting the active substance (A) capable of swelling is a copolymer derived from at least one nonionic hydrophobic monomer and from 10 to 50% of its weight of at least one monomer which is potentially anionic in the rinsing medium (MR).
65. (Withdrawn) The formulation according to Claim 53), comprising a nonionic surfactant whose amount represents less than 70% of the weight of all of the surfactants (TAC).
66. (Withdrawn) The formulation according to Claim 53), having a ratio of the mass of polymer constituting the active substance (A) to the mass of surfactant (TAC), of from 0.01 to 10.
67. (Withdrawn) The formulation according to Claim 53), wherein the cationic charges generated by the optional cationic or potentially cationic units of the copolymer constituting the active substance (A) and by the cationic surfactant or surfactants at the surface of the polymer constituting the active active substance (A) in dispersion in the medium (MAV) are such that the zeta potential of said polymer or copolymer in dispersion in (MAV) is from 0 to +50 mV.

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68. (Withdrawn) The formulation according to Claim 53), wherein the dispersion medium (MAV) for the active substance (A) is water or an aqueous-alcoholic polar medium.

69. (Withdrawn) The formulation according to Claim 68), wherein the alcohol or alcohols present in the aqueous-alcoholic polar medium represent up to 70% of the volume of the medium (MAV).

70. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is any polymer which is soluble or dispersible in aqueous or aqueous-alcoholic medium with a pH of between 2 and 8 and which comprises at least one unit which is neutral in the medium (MAV) and potentially anionic (HA) in the rinsing medium (MR).

71. (Withdrawn) The formulation according to Claim 70), wherein the vehicle (V) polymer further comprises at least one unit which is cationic or potentially cationic (HC) in the medium (MAV) or at least one hydrophilic or hydrophobic nonionic unit.

72. (Withdrawn) The formulation according to Claim 53), wherein the relative amounts of the various units of the polymer constituting the vehicle (V) are such that in the medium (MAV) the overall charge of the polymer or copolymer is zero or cationic.

73. (Withdrawn) The formulation according to Claim 53), wherein the relative amounts of vehicle (V) polymer, surfactant (TAC), and polymer constituting the active substance (A) are such that in the course of the rinsing operation the number of anionic charges developed in the rinsing medium (MR) by the vehicle polymer (V) is

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sufficient to destabilize the active substance (A) in the rinsing medium (MR), by electrostatic attraction with the surface charges of the active substance (A) in the medium (MR).

74. (Withdrawn) The formulation according to Claim 72), wherein the number of anionic charges developed in the rinsing medium (MR) by the vehicle (V) polymer to destabilize the active substance is at least 1% relative to the number of cationic surface charges of the active substance (A) in the medium (MR), and not more than 200% relative to the number of cationic surface charges of the active substance (A) in the medium (MR).

75. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is a polymer derived from ethylenically unsaturated monomers, potentially anionic natural polysaccharides, potentially anionic polysaccharides, amphoteric substituted polysaccharides, or modified polysaccharides.

76. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is a polymer derived:

from at least one α - β monoethylenically unsaturated monomer which is neutral in the medium (MAV) and potentially anionic (HA) in the rinsing medium (MR),

optionally at least one α - β monoethylenically unsaturated monomer which is cationic or potentially cationic (HC) in the medium (MAV), and

optionally at least one nonionic α - β monoethylenically unsaturated monomer which is hydrophilic or hydrophobic, preferably hydrophilic.

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77. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is a random, block or graft copolymer derived:

from at least one α - β monoethylenically unsaturated hydrophilic monomer which is neutral in the medium (MAV) and potentially anionic (HA) in the rinsing medium (MR), and

from at least one α - β monoethylenically unsaturated hydrophilic monomer which is cationic or potentially cationic (HC) in the medium (MAV),

and optionally from at least one nonionic α - β monoethylenically unsaturated monomer which is hydrophilic or hydrophobic, preferably hydrophilic.

78. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) derives from one or more α - β monoethylenically unsaturated monomers and has an average molar mass of greater than 5 000 g/mol.

79. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is:

polyacrylic or polymethacrylic acids, alkali metal polyacrylates or polymethacrylates,

optionally having a molar mass by weight of from 100 000 to 1 000 000 g/mol,

acrylic acid/DADMAC copolymers, with a molar ratio of 50/50 to 30/70, optionally

with a molar mass by weight of from 70 000 to 350 000 g/mol,

acrylic acid/MAPTAC copolymers, with a molar ratio of 60/40 to 30/70, optionally

with a molar mass by weight of from 90 000 to 300 000 g/mol,

acrylic acid/MAPTAC/linear C₄-C₁₈ alkyl methacrylate terpolymers comprising 0.005

to 10% by mass of alkyl methacrylate, with an acrylic acid/MAPTAC molar ratio

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ranging from 60/40 to 30/70, and optionally having a molar mass by weight of from 50 000 to 250 000 g/mol, or

acrylic acid/dimethylaminoethyl methacrylate (DMAEMA) copolymers, with a molar ratio of 60/40 to 30/70, optionally with a molar mass by weight of from 50 000 to 300 000 g/mol.

80. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is a potentially anionic natural polysaccharide formed of nonionic monosaccharide units and of monosaccharide units which are neutral in the medium (MAV) and potentially anionic in the rinsing medium (MR), and are identical or different.

81. (Withdrawn) The formulation according to Claim 80), wherein said potentially anionic natural polysaccharide is a branched polysaccharide formed

of a main chain comprising alike or different anhydrohexose units, and

of branches comprising at least one anhydropentose or anhydrohexose unit which is neutral in the medium (MAV) and optionally potentially anionic in the rinsing medium (MR).

82. (Withdrawn) The formulation according to Claim 80), wherein said potentially anionic natural polysaccharide is a xanthan gum, a succinoglycan, a rhamsan, a gellan gum or a welan gum.

83. (Withdrawn) The formulation according to Claim 80), wherein said potentially anionic natural polysaccharide has a molar mass by weight of from 2 000 to 5 000 000.

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84. (Withdrawn) The formulation according to Claim 53), wherein the polymer constituting the vehicle (V) is a substituted or modified polysaccharide whose native skeleton is formed of nonionic monosaccharide units or of monosaccharide units which are neutral in the medium (MAV) and potentially anionic in the rinsing medium (MR), said monosaccharide units being alike or different and being substituted or modified:

by one or more groups which carry at least one charge which is neutral in the medium (MAV) and potentially anionic in the medium (MR), and optionally, by one or more groups which carry at least one charge which is cationic or potentially cationic in the medium (MAV),

the degree of substitution or modification of the monosaccharide units by the entirety of the groups which carry charges which are potentially anionic and of optional groups which carry cationic charges being such that said substituted or modified polysaccharide is soluble or dispersible in aqueous or aqueous-alcoholic medium and has an overall cationic or zero charge in the medium (MAV).

85. (Withdrawn) The formulation according to Claim 84), wherein said substituted or modified polysaccharide further comprises at least one nonionic modifying or substituent group.

86. (Withdrawn) The formulation according to Claim 84), wherein said substituted or modified polysaccharide is a substituted or modified branched polysaccharide whose native skeleton is formed:

of a main chain comprising alike or different anhydrohexose units, and

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of branches comprising at least one anhydropentose or anhydrohexose unit which is neutral in the medium (MAV) and optionally potentially anionic in the rinsing medium (MR),

the anhydrohexose and/or anhydropentose units of said polysaccharide being substituted or modified by one or more groups which carry at least one charge which is neutral in the medium (MAV) and potentially anionic in the medium (MR) and optionally at least one charge which is cationic or potentially cationic in the medium (MAV), and

the degree of substitution or modification DS_i of the anhydrohexose or anhydropentose units by the entirety of said groups which carry charges which are ionic or potentially ionic ranging from 0.01 to less than 3, with a ratio of the number of potentially anionic charges in the medium (MR) to the number of cationic or potentially cationic charges in the medium (MAV) ranging from 100/0 to 30/70.

87. (Withdrawn) The formulation according to Claim 83), wherein said substituted or modified polysaccharide has a molar mass by weight of from 2 000 to 5 000 000.

88. (Withdrawn) The formulation according to Claim 83), wherein the native skeleton of said substituted or modified polysaccharide is a galactomannan.

89. (Withdrawn) The formulation according to Claim 83), wherein the native skeleton of said substituted or modified polysaccharide is:

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carboxymethylgalactomannans, carboxymethylguars,
carboxymethylhydroxypropylgalactomannans,
carboxymethylhydroxypropylguars,
carboxymethyl-hydroxypropyltrimethylammonium chloride
galactomannans, carboxymethyl-hydroxypropyltrimethylammonium
chloride guars, carboxymethylhydroxypropyl-hydroxypropyl-
trimethylammonium chloride galactomannans, or carboxymethyl-
hydroxypropyl-hydroxypropyltrimethylammonium chloride guars.

90. (Withdrawn) The formulation according to Claim 53), wherein the amount of vehicle (V) present in said formulation is from 0.001 to 5 parts by weight, per 100 parts by weight of active substance (A).

91. (Withdrawn) The formulation according to Claim 53), being in the form of an aqueous or aqueous-alcoholic dispersion comprising per 100 parts of its weight:

from 0.01 to 40, parts by dry weight of active substance (A),
from 0.01 to 50, parts by dry weight of surfactant (TAC), and
from 0.001 to 4, parts by dry weight of vehicle (V) polymer.

92. (Withdrawn) The formulation according to Claim 53), further comprising one or more customary constituents of cationic rinsing formulations, which are cationic softeners, optical brighteners, color transfer inhibitors, water-soluble monovalent mineral salts, silicone oils, animal, vegetable hydrocarbon waxes, mineral hydrocarbon waxes, vegetable oils, mineral oils, dyes, fragrances, foam suppressants, enzymes or bleaches.

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93. (Withdrawn) The formulation according to Claim 53), wherein the solid active substance (A) being in particulate form contains, encapsulated within its particles, at least one liquid or solid hydrophobic organic active substance (MAO) other than (A).

94. (Withdrawn) The formulation according to Claim 93), wherein said liquid or solid hydrophobic organic active substance (MAO) is a fragrance, a biocide, an anti-UV agent, an optical brightener, a silicone oil, an aminosilicone oil, a mineral oil or avegetable oil.

95. (Previously presented) A process for treating textile fiber articles comprising the steps of : a) contacting said articles in the course of a rinsing operation in aqueous or aqueous-alcoholic medium with the rinsing formulation (F) as defined in claim 53), and b) recovering said rinsed articles.

96. (Previously presented) The process intended to enhance the antiwrinkle, easy-iron or soil release properties of textile fiber articles, comprising the steps of a) contacting said articles in the course of a rinsing operation in aqueous or aqueous-alcoholic medium with the rinsing formulation (F) as defined in Claim 53), and b) recovering said rinsed articles.

97. (Previously presented) The process according to Claim 96), wherein the solid active substance (A) in particulate form in the formulation (F) contains, encapsulated within its particles, at least one liquid or solid hydrophobic active substance (MAO) other than (A), and in that said process is further intended to confer on said textile fiber articles additional benefits intrinsic to said hydrophobic organic active substance (MAO).

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98. (Previously presented) The process according to Claim 97), wherein said hydrophobic organic active substance (MAO) is a liquid or solid fragrance and in that said process is intended additionally to provide said textile fiber articles with fragrancing properties.

99. (Previously presented) The processes according to Claim 95); wherein the amount of formulation employed, expressed in terms of dry matter, is from 0.001 to 5 g/l, in the rinsing bath.